

**Confidential Treatment Requested**

**January 9, 2015**

**RESPONSES OF TK HOLDINGS INC. (“TAKATA”)  
TO QUESTIONS FOR THE RECORD FROM THE  
HOUSE ENERGY AND COMMERCE COMMITTEE  
SUBCOMMITTEE ON COMMERCE, MANUFACTURING, AND TRADE**

Takata is pleased to provide responses to the additional questions for the record issued on December 15, 2014, by the House Energy and Commerce Committee’s Subcommittee on Commerce, Manufacturing, and Trade (the “Committee”).

The following responses are based on information gathered to-date as part of Takata’s ongoing review of facts and documents relating to airbag inflator ruptures undertaken in response to the Special Order of the National Highway Traffic Safety Administration (“NHTSA”) of October 30, 2014, and subsequent orders from NHTSA. Takata is in the process of collecting a large volume of data and materials in response to NHTSA’s orders, and Takata’s review of the facts and records relevant to the Committee’s questions is not yet complete. In light of the short time available to respond and the ongoing status of Takata’s review and document collection efforts, the following responses to the Committee’s questions are necessarily limited. In answering these questions, Takata has provided descriptions of general practices and has not attempted to address each variation from or exception to those general practices. Takata is providing answers based on its current understanding of information and records that are subject to ongoing review. If, upon further review, Takata learns of any records or information inconsistent with the answers or materials provided in response to the following questions, Takata will promptly bring such records or information to the attention of the Committee.

As discussed with the Committee’s legal counsel, the information that appears in bold brackets below constitutes sensitive and confidential business information of Takata or of its customers (or, in certain instances, personal information), all of which would be protected from disclosure by executive agencies under 5 U.S.C. § 552b. This designated information has either been granted confidential treatment and protection by NHTSA pursuant to 49 CFR § 512 or is information that Takata will request be granted such treatment and protection by NHTSA. Takata has identified such confidential information to the Committee and is submitting it for the internal use of the Committee in connection with its examination of airbag inflator issues. The Committee, through its legal counsel, has expressly assured Takata that the information designated as confidential by Takata will be treated and maintained as confidential in accordance with procedures followed by the Committee in connection with previous inquiries involving similar business matters. Under those procedures, the information designated as confidential will not be shared or disclosed outside the Committee, including in a public hearing, without a prior opportunity for Takata to identify particular information that Takata may request be redacted

before it is disclosed by the Committee. Takata is submitting the designated information to the Committee in good faith reliance on these assurances.

**Responses to Questions of Representative Terry**

- 1. Mr. Shimizu acknowledged warnings were issued by Takata engineers about the use of ammonium nitrate in Takata airbag inflators but testified that Takata believed it could control the chemical. What specific controls did Takata implement to manage ammonium nitrate and mitigate concerns about its stability?*

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**



2. *What changes has Takata made in the composition of the propellant used in any of the makes and models that have been recalled for inflator issues? When were those changes made? Is Takata aware of any vehicle makes and models that use the same propellant compound that haven't had recall issues?*

**Response:**

The inflators that are currently the subject of the campaigns related to inflator ruptures use either the 2004 or 2004L propellant.

**THE REMAINDER OF THIS ANSWER CONTAINS CONFIDENTIAL  
INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**



To Takata's knowledge, automobile makes and models equipped with inflator designs PSDI-5, PSDI-X, PSPI-6, PSPI-2, PSPI-X, SPI-2, SPI-X, SDI-X 1.7, SSI-20, and PDP have not experienced inflator ruptures, and these vehicle makes and models are not subject to any recalls related to inflator ruptures.<sup>1</sup> Some of these inflator designs use the 2004 propellant formulation and some use the 2004L propellant.

3. *Do airbag inflators or propellant wafers have an expiration date? If so, please specify how long airbag inflators and/or propellant wafers are guaranteed to function properly in the event of an airbag deployment. If not, please confirm that airbag inflators and propellant wafers are guaranteed to perform properly throughout the "life" of a vehicle. Please include a discussion of how the "life" of a vehicle is determined.*

---

<sup>1</sup> The SDI-X inflator was the subject of a limited recall in 2014 because a certain number of inflators were manufactured with an incorrect component that could potentially lead to a ruptured inflator. The propellant in that inflator was not the cause of the recall. The PDP inflators were also the subject of a limited recall in 2013 (13V-315) due to a weld concern.

**Response:**

In certain instances, airbag manufacturers have produced airbags with expiration dates. More typically, airbag inflators are generally intended to function for the expected life of the vehicle. Some industry testing specifications use 15 years as the benchmark for the expected performance life of an inflator (*see, e.g.,* USCAR-24-3.1.1); however, it is not industry practice for the airbag manufacturer to guarantee the performance of the airbag for such periods of time. Rather, under typical specifications used by automobile manufacturers, certain specified tests are performed on inflator designs as a means to simulate the predicted performance of the inflator over time. The testing specifications used to simulate predicted performance over time are developed by the automobile manufacturers.

4. *Age has been indicated as a contributing factor in the ruptures. Specifically, what effect does age have on the propellant material that contributes to the ruptures?*

**Response:**

Propellant aging can entail a change in the physical properties of the 2004 propellant. Specifically, over time, the 2004 propellant may become less dense, and a reduction in the density of the propellant may result, upon ignition, in a surface area progression that differs from what is intended. A progression in surface area, in turn, may result in the deployment of the inflator with higher than expected internal inflator pressures. These changes in the propellant's physical properties may be exacerbated by the introduction of moisture into the system.

5. *Is there a way to recreate the effect of time in a laboratory in a much shorter period to understand how these inflators will operate in the future?*

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**

CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION



6. *How is Takata certain that over time more inflators won't be affected?*

**Response:**

Takata is not certain that over time more inflators will not be affected by the issues that have caused certain inflators to rupture, nor has it represented as much. The goal of Takata's ongoing field recovery and testing is to gain information to understand and address the issues and to help determine whether additional inflators will be affected by those issues. Takata is committed to working cooperatively with regulators and automobile manufacturers to take all actions necessary to assure that its inflators are as safe as possible.

7. *Please describe in detail what changes Takata has made between 2000 and today in the manufacturing process for inflators subject to a recall. Please identify which changes are most responsible for ensuring that replacement inflators are safe, and, separately, why the replacement inflators are not susceptible to deterioration over time.*

**Response:**

THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:

CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION



CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION



8. *Mr. Shimizu's testimony states that to Takata's best current judgment the root cause of the most recent inflator ruptures involves a combination of three factors: the age of the unit, the persistent exposure to high absolute humidity, and potential manufacturing issues.*

a. *What does Takata consider to be persistent exposure to conditions of high absolute humidity?*

**Response:**

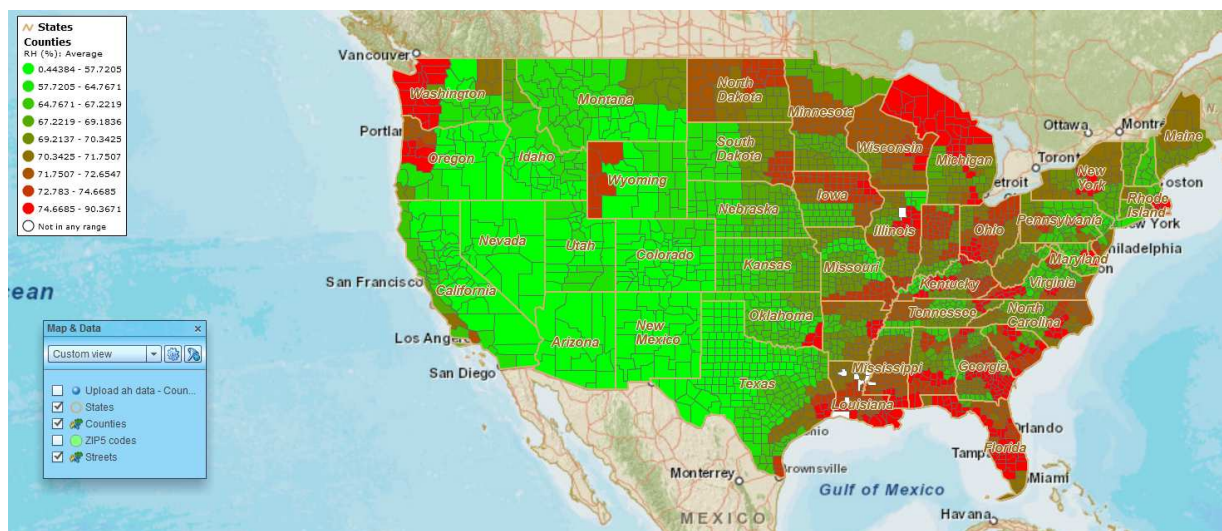
Current testing of inflators retrieved from the field suggests that exposure of at least seven years in regions of the United States experiencing the highest levels of average absolute humidity may be a contributing factor to inflator ruptures.

b. *How did Takata make the determination that high absolute humidity is a potential root cause in the most recent inflator ruptures?*

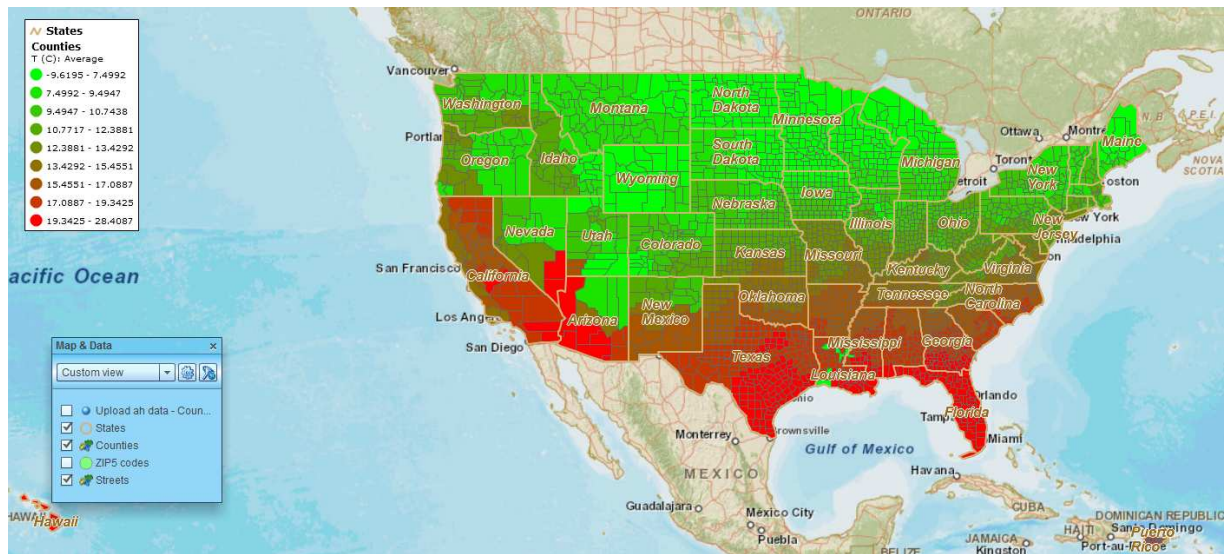
**Response:**

Takata's initial determination that high absolute humidity is a potential root cause in the most recent inflator ruptures was based on the observation that the early "Beta" rupture incidents (those not associated with prior recalls involving specific manufacturing issues) did not follow a relative humidity or average temperature bias, but strongly followed an absolute humidity bias.

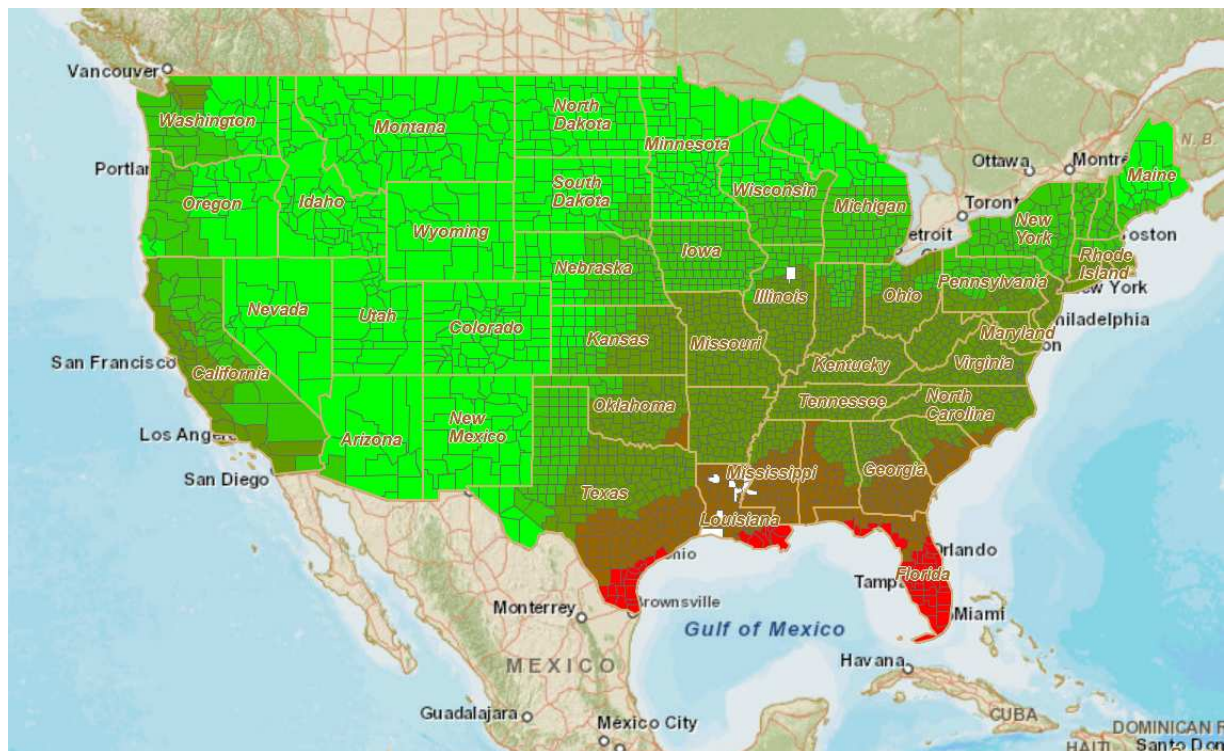
Below is a relative humidity map of the continental United States:



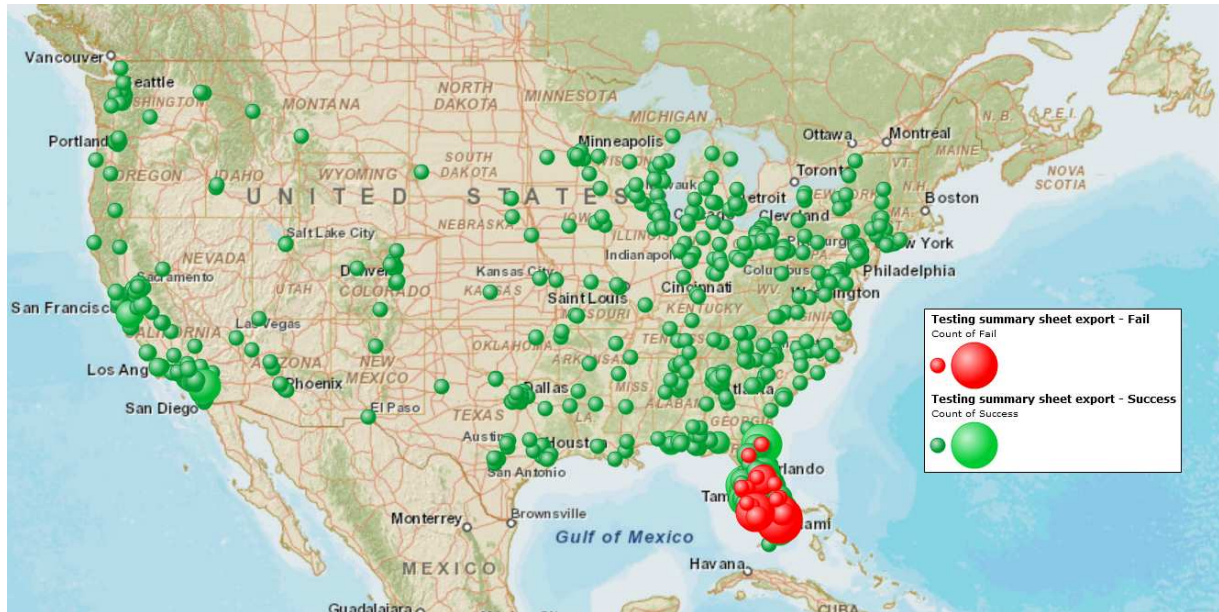
Below is an average temperature map of the continental United States:



Below is an absolute humidity map of the United States:



When the absolute humidity map, above, is compared to the map below of rupture events observed in Takata testing, which follow the patterns observed in the early Beta events, the correlation to the high absolute humidity map is striking:



***c. How does extended exposure to high humidity and moisture affect the airbag inflator?***

**Response:**

In certain circumstances, exposure to conditions of high absolute humidity over an extended period of several years may result in the migration of moisture into the inflator, which in turn may degrade the propellant. Such conditions may alter the propellant's physical properties. *See also* Response to Question No. 4, *supra*.

9. ***Mr. Shimizu testified that the manufacturing of the inflators, and not the materials, was the cause of the ruptures occurring in high absolute humidity climates. How did Takata make that determination? Has Takata identified which manufacturing issues could potentially be problematic? If so, please identify them.***

**Response:**

The national recalls of vehicles in the United States equipped with certain Takata inflators that were initiated prior to October 2014 involved specific, identified manufacturing issues. Honda vehicles equipped with certain PSDI driver-side inflators were recalled between 2008 and 2012 because a propellant wafer pressing machine may have failed adequately to press wafers to the proper density. Recalls of vehicles equipped with various passenger-side inflators, including the SPI, PSPI, and PSPI-L designs, that were initiated in 2013 and expanded in 2014 were based on the identification of two manufacturing factors. First, Takata determined that controls for compression force measurement may not have been adequately monitored, potentially allowing propellant wafers pressed to below-specification force levels to be used for inflator assembly. Second, Takata identified the potential for material handling issues in the inflator assembly plant in Monclova, Mexico, which could have allowed propellant to be exposed to moisture for an excessive time period.

Although it is possible that additional undetermined manufacturing issues may exist in the population of inflators in the United States that were not covered by the aforementioned recalls (the so called “Beta” inflators), Takata is not currently aware of any such specific manufacturing issues that could potentially be the cause of the ruptures occurring in high absolute humidity climates. Based upon currently-available information, Takata believes that the relatively low frequency of field events even in the highest absolute humidity regions and even among older inflator units supports the theory that only a very limited number of unrecalled inflators are at risk.

***10. Has Takata found any evidence in its testing that the vehicle itself is a possible contributor to the inflator ruptures? Has Takata found any evidence in its testing that the way in which the airbag module is installed in the vehicle is a possible contributor to the inflator ruptures?***

**Response:**

Takata's testing of inflators retrieved from the field has revealed significant differences in the rupture frequency for similar inflators depending on the vehicle make and model in which the inflators are installed. For instance, the testing results reveal that certain automobile make and model combinations appear to be at a greater risk of inflator rupture than others with similar inflator configurations. These results support the view that the automobile environment is a more important factor than previously suspected. Takata's investigation regarding the potential role of these factors in inflator performance is ongoing. Takata believes that further research into automobile design and environment differences could help explain the observations.

***11. Please provide updated numbers/results for all inflator testing done by year up to the current date and starting with 2000.***

**Response:**

Attached hereto as Bates number TKH-HE&C00001313-1329 is a summary of the results, as of January 4, 2015, of testing conducted by Takata on inflators that have been retrieved from the field either as part of a campaign.

***12. Please provide the exact number of replacement inflators manufactured in 2014 by design number and how many of each has been provided to each OEM to date.***

**Response:**

The chart below reflects the approximate number of replacement inflator kits manufactured and provided to automobile manufacturers between January 1 and December 23, 2014:

THE REMAINDER OF THIS ANSWER CONTAINS CONFIDENTIAL  
INFORMATION:

CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION



*13. How does Takata determine the provision of replacement parts to each OEM?*

**Response:**

To date, Takata has had adequate capacity for production of replacement inflator kits to fill the monthly demand schedules provided by all automobile manufacturers. With the recent

expansions of the campaigns to include vehicles throughout the nation that were equipped with certain driver-side airbags, demand will likely exceed Takata's capacity at some point in the near future. Takata has explained to NHTSA and automobile manufacturers that its plan for the provision of replacement inflator units is to allocate supply based upon the percentage that each automobile manufacturer represents of the total demand. This proposal has been discussed with, and agreed to by, NHTSA and the automobile manufacturers. NHTSA has also agreed to assign a point person to assist in the allocation of capacity and production commitments going forward.

***14. Based on Takata's testing and analyses, are there certain inflators that are more at risk than others in high absolute humidity areas? If so, please identify which inflators are more susceptible to a rupture in high absolute humidity areas.***

**Response:**

Takata's testing of inflators retrieved from the field has indicated that certain types of inflators are more at risk of rupture than others in high absolute humidity areas. Specifically, the PSPI-L inflator in the "FD" configuration appears to present a higher risk of rupture than other passenger inflators. As indicated in response to Question No. 10, Takata is still in the process of determining the contributing factors, if any, that may cause certain inflator types or certain automobile models to present more or less risk of rupturing.

***15. NHTSA identified four high absolute humidity regions in its June 2014 regional field action request – Florida, Hawaii, Puerto Rico, and the U.S. Virgin Islands. Does Takata support NHTSA's identification of high absolute humidity areas in the United States?***

**Response:**

During a meeting with NHTSA in early summer 2014, when NHTSA initially asked Takata to support regional field actions to retrieve potentially problematic inflators from areas of high absolute humidity, NHTSA referred solely to automobiles originally sold in or registered in Florida and Puerto Rico. Takata and NHTSA noted that the field actions should also cover Hawaii and the U.S. Virgin Islands, based on the fact that the average absolute humidity in

Hawaii and the U.S. Virgin Islands is higher than that in Florida. Since that time, NHTSA has urged automobile manufacturers to revise the covered areas for regional campaigns involving passenger-side inflators to include certain areas in Southern Georgia, coastal areas of Alabama, Mississippi, Louisiana, Texas, Guam, American Samoa, and Saipan, all of which have high levels of absolute humidity. Takata fully supports those expansions.

*a. Does Takata think more states should be included in the designated high absolute humidity region? If so, which states?*

**Response:**

As discussed above, Takata supports the automobile manufacturers' expansion of the areas covered by the regional campaigns involving certain passenger inflators. Based on the testing and analysis conducted thus far, Takata does not believe that any further expansion of the region to include additional States is warranted at the present time. Nor does Takata believe that the testing and analysis to date support an expansion of the regional campaigns with respect to driver-side inflators. Nevertheless, Takata will support the automobile manufacturers' decisions to honor NHTSA's request for national campaigns covering certain driver-side inflators and will work to supply the necessary replacement kits as quickly as possible.

*b. Please describe the method Takata utilized to determine areas of high absolute humidity in the United States if Takata disagrees with NHTSA's identification of high absolute humidity areas in the United States.*

**Response:**

Takata does not disagree with NHTSA's identification of areas of high absolute humidity in the United States.

*16. In the summer of 2004, Takata reported that it conducted an experiment on airbags at its Auburn Hills, Michigan facility to investigate an accident involving an airbag cushion tear. Takata claimed that the abrasion on the inside cover of the cushion was unrelated to an inflator rupture. How did Takata make the determination that the tear was unrelated to an inflator rupture? What caused the abrasion? Please explain.*

**Response:**

The experiments conducted at Takata's Auburn Hills, Michigan, facility in 2004 were not in response to an accident involving an airbag cushion tear. Rather, they were conducted to address a cushion-tearing issue that had occurred during a compatibility crash test conducted by NHTSA in early 2004. Takata determined that the cushion-tearing issue was unrelated to an inflator rupture because the inflator used in the compatibility crash test in which the cushion tearing was observed did not rupture.

***17. In September 2007, Takata presented a propellant exposure theory to Honda which concluded that "elevated moisture and thermal cycling compromised the propellant." Can you please explain this theory? Is it related to airbag inflator ruptures?***

**Response:**

This theory was related to ruptures of Takata's PSDI inflator. At the time, Takata did not have any intact inflators returned from the field for evaluation and testing. The theory was based on the observation that certain conditions may have existed during propellant and inflator manufacturing that could have introduced moisture into the system. No other manufacturing conditions were identified at the time that coincided with the known ruptures. However, after Takata was able to analyze inflators retrieved from the field, it determined that the likely cause of the ruptures was an abnormal propellant press condition and not excessive exposure to moisture in the manufacturing environment.

***18. In the 2013 recalls affecting passenger's side airbag inflators, Takata attributed part of the defect to the "auto-reject" function on a machine at its Moses Lake, Washington facility. Takata stated in an April 11, 2013 filing to NHTSA that the auto-reject feature is supposed to identify and reject propellant wafers with inadequate compression. When the auto-reject is on and properly functioning, what is the average percentage of propellant wafers this feature rejects?***

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**

19. *Mr. Shimizu testified that the reported 2003 airbag inflator rupture incident in a BMW vehicle in Switzerland was not related to the current issues regarding inflators. What caused the inflator to rupture in that 2003 incident?*

**Response:**

The suspected root cause of the inflator rupture incident in 2003 involving a BMW automobile in Switzerland was propellant overload of the inflator's secondary chamber. Takata concluded that it was likely that the number of "batwing" propellant wafers included in that inflator did not conform to specification.

- a. Mr. Shimizu testified that a manufacturing process problem was involved with the 2003 rupture in Switzerland. What specifically was the manufacturing process problem and how was it resolved?*

**Response:**

Takata identified two manufacturing process problems related to this incident. First, an operator apparently put too many wafers in the inflator. Second, a height-check device designed to verify that the proper quantity of wafers had been put in the inflator was not properly functioning, resulting in the possibility that the device may have failed to detect an overload.

- b. Is the manufacturing issue from the 2003 rupture a possible cause of the ruptures occurring in either driver or passenger airbag inflators in the United States since 2003? Is Takata examining the possibility that the 2003 rupture has the same, or a similar, cause to the rupture events occurring after that time in the United States?*

**Response:**

Takata does not believe that the propellant overload issue identified in connection with the 2003 BMW rupture is a root cause explanation for the current "Beta" ruptures in the United

States. It is possible, however, that propellant overload may be a contributing factor in a particular case.

**20. According to a December 3, 2014 Reuters article, Takata stated that the cause of the 2003 inflator rupture was due to an “overloaded inflator.” What is an “overloaded inflator” and how does that occur? What processes did Takata put in place to remedy that particular inflator issue?**

**Response:**

The incident referred to in the *Reuters* article is the same incident referred to in Question No. 19. The 2003 incident involved a PSDI-4 inflator manufactured on December 11, 2001, and Takata determined that the inflator likely was overloaded, meaning that the number of batwing propellant wafers inserted into the inflator likely exceeded specification.

**THE REMAINDER OF THIS ANSWER CONTAINS CONFIDENTIAL  
INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**

**a. What exact elements of the manufacturing process may cause an “overloaded inflator”?**

**Response:**

Please see response to Question No. 19(a).

**b. What exact elements of the manufacturing process caused the “overloaded inflator” in the 2003 case?**

**Response:**

Please see response to Question No. 19(a).

**21. How long will the Quality Assurance Panel’s audit take to be completed? What Takata facilities will the Panel audit? What manufacturing procedures will the Panel audit? Will Takata make public any and all findings produced by the Panel’s audit? If so, please identify which findings will be made public. Will the findings of the Panel’s audit be**

*shared with Takata's vehicle manufacturer customers? Will the findings of the Panel be shared with any regulatory agencies, including but not limited to NHTSA?*

**Response:**

The Quality Assurance Panel will be independent and will be chaired by former Secretary of Transportation Samuel K. Skinner. The Panel will audit and assess Takata's current policies, practices, procedures, structure, and personnel to ensure that the Company's current manufacturing meets best practices for the production of safe inflators, including inflator propellant. The Panel will commence work in the coming weeks and will have the time and access to the information it needs to fulfill its mandate thoroughly and independently. Upon completion, the report produced by the Panel will be made public.

**Responses to Questions of Representative Blackburn**

*1. A November 19th New York Times article noted that two Takata employees at your Moses Lake, Washington facility questioned the use of an ammonium nitrate propellant in your airbags.*

*(1) Michael Britton, a Takata chemical engineer, stated the following: "It was a question that came up: Ammonium nitrate propellant, won't that blow up?"*

*(2) Mark Lillie, a former senior engineer with Takata, said "It's a basic design flaw that predisposes this propellant to break apart, and therefore risk catastrophic failure in an inflator."*

*a. What was Takata's response to the concerns raised by Mr. Britton and Mr. Lillie?*

**Response:**

Takata is currently reviewing whether Messrs. Britton and Lillie raised the concerns attributed to them in the *New York Times* article and, if so, whether and how Takata responded to those concerns.

**THE REMAINDER OF THIS ANSWER CONTAINS CONFIDENTIAL  
INFORMATION:**

- b. Did any other Takata employees, or outside parties, warn Takata about using an ammonium nitrate propellant in its airbags?*

**Response:**

Takata is currently reviewing whether any other warnings or concerns were raised regarding the use of ammonium nitrate in its inflators. However, Takata believes that, as with most technical development projects, it is likely that competing views were offered regarding the use of phase-stabilized ammonium nitrate propellants in airbag inflators. As is typical, such views would have been considered by internal experts and company management, and Takata's customers were aware of the relevant issues. In the end, Takata believed that the product demonstrated an ability to perform properly under a wide range of conditions.

- c. Were concerns about using an ammonium nitrate propellant relayed to executives at Takata? Who? When?*

**Response:**

Takata is currently reviewing whether concerns regarding the use of an ammonium nitrate propellant were raised with Takata executives, but it is currently unaware of any written record reflecting that such concerns were so relayed. Takata notes that significant concerns are generally raised verbally with Takata executives throughout the design review process.

- d. Why did Takata decide to use an ammonium nitrate propellant as opposed to Tetrazole? Who at the company oversaw that decision making process?*

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY AND PERSONAL INFORMATION**



- e. Yes or no . . . was there a costs savings to using ammonium nitrate as opposed to Tetrazole in Takata air bags? What was the cost savings per airbag?*

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**



**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**

2. *Did Takata have possession of any reports or studies, internal or otherwise, relating to the long term storage of ammonium nitrate as a propellant in airbags, or long-term storage in general, prior to making its decision to switch in 2001?*

**Response:**

Yes. Prior to deciding to use phase stabilized ammonium nitrate in its inflators in 2000, Takata had in its possession literature and research regarding the long-term storage of ammonium nitrate generally and as a propellant in airbags.

3. *Did Takata perform any safety testing regarding ammonium nitrate propellant prior to authorizing its use in Takata airbags?*

**Response:**

Yes. Takata conducted safety testing regarding phase stabilized ammonium nitrate propellant prior to its use in airbags, as is the industry standard.

**THE REMAINDER OF THIS ANSWER CONTAINS CONFIDENTIAL  
INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**

4. *What was the level of training and experience of the Takata engineers involved in analyzing the use and granting approval to use ammonium nitrate propellant in airbags?*

**Response:**

Individuals who were involved in analyzing the use of, and granting the approval to use, ammonium nitrate in Takata airbags included B.S., M.S. and Ph.D. level engineers and chemists well-versed in pyrotechnic chemistry.

### **Responses to Questions of Representative Schakowsky**

1. *Takata filed a Part 573 Safety Recall Report on October 29, 2014, about a manufacturing issue at the Monclova, Mexico plant that was not previously disclosed during meetings with Committee staff. According to this 573 Report “[c]ertain air bag inflators installed in frontal driver-side air bag modules built with an incorrect component manufactured at Takata’s Monclova, Mexico plant during the period from June 16th, 2008 through June 20th, 2014.”*

a. *Was Takata producing defective airbags as recently as six months ago, even after it had recalled millions of vehicles?*

#### **Response:**

As stated in the Takata Part 573 Safety Recall Report 14E-071,<sup>2</sup> Takata did produce a certain number of inflators (driver-inflator type SDI-X) with an incorrect component that could lead to a ruptured inflator. This recall is unrelated to the rupture issues that Takata is currently investigating since it did not relate to ruptures potentially caused by moisture exposure and aging in high absolute humidity environments.

b. *How many airbags were built with “incorrect components” between June 1 and June 20, 2014?*

#### **Response:**

The exact number of SDI-X inflators built with an incorrect component is not known. General Motors and Nissan both conducted recalls in the United States in 2014 to address this manufacturing problem. General Motors recalled approximately 30,000 automobiles and Nissan approximately 2,000 automobiles. The number of automobiles recalled by General Motors and Nissan includes a safety margin regarding the suspect population with potentially incorrect components, and it is likely that fewer than that number of inflators actually were built with the incorrect component.

---

<sup>2</sup> Available at [www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM465672/RCLRPT-14E071-0392.PDF](http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM465672/RCLRPT-14E071-0392.PDF).

- c. What was the manufacturing defect you identified in this October 29 report? How did this defect affect the functionality of the airbags?*

**Response:**

As stated in the “Description of the Defect” section of the Part 573 Report:

Some airbags may contain an inflator that was built with an incorrect outer baffle component that could cause excessive internal pressure inside of the inflator that can lead to a rupture during a deployment. In a vehicle crash event, this may cause inflator components to separate and potentially be propelled toward the interior of the vehicle.

- d. How is this manufacturing-related defect different from the manufacturing defect Takata previously identified that occurred at the Monclova plant in 2002?*

**Response:**

The defect Takata identified with respect to the production of inflators in the Monclova assembly plant in 2002 related to the handling of propellant wafers. Takata determined that propellant wafers could have been left in work stations during a prolonged shutdown of the assembly line, exposing them to humidity inside the plant for a prolonged period of time. The defect described in the October 29, 2014 Part 573 Report described above is entirely unrelated to the 2002 Monclova defect.

- 2. Please provide all recent results of Takata’s testing (in the same format as previously provided to the Committee), from November 17, 2014 to the present.*

**Response:**

Please see the charts provided in response to Representative Terry’s Question No. 11.

- 3. At the Subcommittee hearing on December 3, 2014, Takata testified that the replacement airbag inflators were produced from the most recent production line, which takes into account all countermeasures learned from previous issues. But in meetings with Committee staff, Takata’s representatives said that most of the recalled inflators were being placed with “like” inflators, with the exception of one car manufacturer that elected to use a different inflator for the replacements.*

- a. How has the design or manufacturing process changed from the production of the original inflators to the “most recent line” you discussed at the Subcommittee hearing?*

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**



- b. Are the replacement inflators different in any way from the original inflators installed in the vehicles?*

**Response:**

**THE FOLLOWING ANSWER CONTAINS CONFIDENTIAL INFORMATION:**

**CONFIDENTIAL - CONTAINS PROPRIETARY INFORMATION**



- c. Please describe all modifications or changes in the design, material composition, manufacturing, or quality control of the inflators that were made from 2000-2014.*

**Response:**

Please see the response to Question No. 3(a) above and Representative Terry's Question No. 7.

- d. Takata, NHTSA, and the automakers testified at the Subcommittee hearing on December 3, 2014, that the root cause of the airbag ruptures is still unknown. Takata claims that high humidity, high temperature, and the age of the vehicle are factors contributing to the ruptures. What is Takata doing to ensure that the new airbags currently being installed into cars in Florida will not have the same problems in five or ten years?*

**Response:**

As explained in response to Question No. 3(a) above and Representative Terry's Question No. 7, Takata has made numerous improvements to its manufacturing processes. As

the question recognizes, Takata's analysis of the possible root cause(s) of the "Beta" inflator ruptures is still ongoing. Until the analysis is complete, it is not possible for Takata to know with certainty whether inflators produced today will need to be replaced at some point in the future.

**4. *At the Subcommittee hearing on December 3, 2014, you testified that testing of airbags that occurred in 2004 was not related to the current inflator recalls. In a follow-up written response to Chairman Upton's question, the airbag testing that Takata conducted in 2004 was instead related to airbag cushion tearing identified by NHTSA that year.***

***a. Please describe with specificity the testing protocols that Takata used to test airbags for tearing in 2004.***

**Response:**

The cushion-tearing issue was first observed during vehicle-to-vehicle compatibility crash tests conducted by NHTSA. Takata's tests in 2004 were designed to replicate and study the cushion-tearing phenomena, and these experiments included sled tests, inflator-only ballistic tests, static module tests, and pendulum tests.

***b. Please describe with specificity the results of Takata's testing of airbag tearing in 2004, including information on the number of airbags tested, the number of tested airbags with cushion tearing, and the number of tested airbags with other problems (including a description of those problems).***

**Response:**

Takata tested approximately 192 airbags in connection with the cushion-tearing experiments conducted in 2004. Approximately 34 tested airbags tore as part of the experiments and approximately 3 airbags experienced pin holes. Takata is aware of a single inflator rupture in connection with those tests, but that inflator was not a production-manufactured inflator and was specifically manufactured in the engineering lab with the intent of producing an abnormally high output through propellant overload. Takata determined that the root cause of the cushion tearing observed by NHTSA was likely the potential for abrasion of the airbag cushion on the inside of the airbag cover upon deployment of the airbag during conditions of unusual acceleration, such

as those produced by the compatibility crash tests.

- c. Did Takata's testing of airbags for tearing in 2004 result in any ruptures of airbag inflators, or any indication that airbags could potentially rupture?*

**Response:**

Please see the response to Question No. 4(b) above.

- d. Did Takata conduct any other testing of airbags in 2004 in the normal course of business? If so, did any such testing result in ruptures of airbag inflators, or any indication that airbags could potentially rupture?*

**Response:**

Takata is continuing to review its records concerning the testing of inflators. However, other than routine quality assurance and quality control testing of inflators as part of the manufacturing process, Takata does not currently believe that its engineers in the U.S. conducted tests of inflators in 2004 relating to the potential for rupturing.

- 5. Many members of the armed forces serve at bases in located in the high absolute humidity regions, and may be stationed there or deployed from there for years, but are allowed to register their cars in their home states. In these or other cases, the vehicle may be operated in Florida for many years but never registered in Florida. In working with the vehicle manufacturers to identify vehicles for recall, how is Takata accounting for these and other vehicles that have been operated in high-humidity regions for years but have never been registered in those regions?*

**Response:**

Takata has identified the inflators – and the air bag modules associated with those inflators – that were produced during the relevant periods. It is up to the automobile manufacturers to decide which vehicle owners are notified and given the opportunity to obtain a replacement inflator. Takata believes that Honda and possibly other manufacturers have also made arrangements to replace airbags in other circumstances where requested by owners who are concerned about the potential for inflator ruptures. With respect to driver-side inflators, all of the affected automobile manufacturers have now agreed to conduct nationwide campaigns.

Takata continues to work with automobile manufacturers to provide the necessary replacement units in response to these actions.

6. *According to a Reuters article on December 4, 2014, titled “Toyota Expands Takata Air Bag Recall in Japan, China,” Toyota announced that it would recall 185,000 vehicles across 19 models in Japan and 5,000 vehicles in China. Japan’s transport ministry said that it instructed other automakers to check whether their vehicles could be affected by the same inflator problem.*

a. *Has Takata conducted, or is Takata planning to conduct, any recalls in Japan or China with regard to Takata airbag inflator ruptures?*

**Response:**

Takata, as a supplier of original equipment, does not conduct vehicle recalls. However, Toyota, Honda, Nissan, and Mitsubishi are conducting recalls in Japan and/or China of vehicles equipped with certain Takata inflators. Takata, as always, supports the actions of automobile manufacturers to promote vehicle safety.

b. *If so, are the recalls in Japan or China conducted pursuant to laws or regulations in those countries? What laws or regulations?*

**Response:**

Recalls in Japan are regulated by the Japan Ministry of Land, Infrastructure, Transport and Tourism (JMLIT). Recalls in China are regulated by the Administration of Quality Supervision, Inspection and Quarantine (AQSIQ).

c. *Please list the make, model, and model years of each vehicle that was recalled in Japan and China in relation to Takata airbag inflator ruptures.*

**Response:**

The following table lists the automobiles that have been recalled in Japan in connection with recalls referenced in the *Reuters* article:

<b>Recall Date</b>	<b>Inflator Type</b>	<b>Make</b>	<b>Model(s)</b>	<b>Automobile Production Period</b>	<b>No. of Affected Units</b>
12/4/14	SPI	Toyota	Corolla, Corolla Runx, Alex, Corolla Fielder, Alphard G, Alphard V, Ipsum, Opa, Gaia, Noa, Voxy, Brevis, Probox, Succeed, Mark II, Verossa, Mark II Britt, WiLL Cypha, WiLL VS	9/24/02-12/25/03	185,093
12/11/14	SPI	Nissan	Presage, X-Trail, Teana, Blue Bird Sylphy, Liberty, Caravan, Safari, Isuzu Como	1/10/03-1/14/04	82,951
12/11/14	SPI	Honda	Stream, Fit, Civic Felio, Civic HHybrid, CR-V, Mobilio, Mobilio Spike, That's, Accord, Accord Wagon	1/6/03-12/27/03	175,111
12/11/14	SPI	Honda	Element	5/19/03-2/6/04	1,741

The following table lists the automobiles that have been recalled in China in connection with the recalls referenced in the *Reuters* article:

<b>Recall Date</b>	<b>Inflator Type</b>	<b>Make</b>	<b>Model(s)</b>	<b>Automobile Production Period</b>	<b>No. of Affected Units</b>
12/5/14	SPI	Toyota	Vios	4/16/03-12/31/03	5,361
12/16/14 & 12/19/14	SPI	Honda	Fit Saloon, Stream, CR-V, Civic	10/30/02-12/30/03	19,128
12/17/14	SPI	Nissan	Paladin, Patrol, Extrail	1/1/03-12/31/03	6,313

# Takata Inflator Test Summary

Testing Through January 4, 2015

# Beta Incidents (U.S.)

No	Takata Notified	Model Year	Event Date	Infl Type	Infl DOB	Location	Field Action Status
1	Sep-13	2005	8/6/13	PSDI Driver	1/18/2005	Florida	Included in 4 state Driver Regional Action
2	Dec-13	2006	9/7/13	PSDI-4 Driver	6/8/2006	Florida	Included in 4 state Driver Regional Action
3	Mar-14	2003	3/2/14	PSPI-L Pass.	5/1/2002	Puerto Rico	Included in 2014 Expansion of National Recall
4	Apr-14	2002	5/12/13	PSPI-L Pass.	7/31/2002	Puerto Rico	Included in 2014 Expansion of National Recall
5	Apr-14	2004	1/2/14	SPI Pass.	6/27/2003	Puerto Rico	Included in 4 state Passenger Regional Action
6	Apr-14	2005	4/26/14	PSDI-4 Driver	5/17/2005	Florida	Included in 4 state Driver Regional Action
7	Jun-14	2005	5/31/14	PSDI-4 Driver	4/27/2005	California	Included in 11 state Driver Regional Action
8	Jun-14	2002	7/7/14	PSDI Driver	6/3/2002	Florida	Included in 11 state Driver Regional Action
9	Aug-14	2004	5/20/14	SPI Pass.	6/16/2003	Florida	Included in 4 state Passenger Regional Action
10	Nov-14	2007	8/17/14	PSDI-4 Driver	2/19/2007	N. Carolina	Evidence limited to photos of an inflator fragment
11	Nov-14	2003	N/A	PSPI-L Pass.	1/29/2003	Texas	Included in Coastal Passenger Regional Action
12	Nov-14	2003	10/7/14	PSPI-L Pass.	2/21/2003	Puerto Rico	Included in 4 state Passenger Regional Action

# ALPHA TESTS SUMMARY

# Passenger PSPI-L

## ALPHA TESTS SUMMARY

Region	PSPI-L		PSPI-L		PSPI-L		PSPI-L		PSPI-L Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	13	124	1	8	0	3	0	0	14	135
Northern Florida	0	63	0	16	0	0	0	0	0	79
Puerto Rico	6	46	0	0	0	0	0	0	6	46
Outside Florida/ Puerto Rico	0	2	0	49	0	23	0	0	0	74
Total	19	235	1	73	0	26	0	0	20	334

I.R.=Inflator Rupture

# Passenger PSPI

## ALPHA TESTS SUMMARY

Region	PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	56	4	34	0	1	0	16	0	1	0	11	0	0	0	0	4	119
Northern Florida	0	102	0	1	0	3	0	4	0	5	0	24	0	0	0	0	0	139
Hawaii	0	15	0	0	1	26	0	0	0	0	0	0	0	0	0	0	1	41
Other State	0	22	0	10	0	78	0	34	0	338	0	285	0	0	0	0	0	767
Total	0	195	4	45	1	108	0	54	0	344	0	320	0	0	0	0	5	1066

I.R.=Inflator Rupture

# Passenger SPI

## ALPHA TESTS SUMMARY

Region	SPI		SPI		SPI		SPI		SPI		SPI		SPI		SPI TBD		SPI Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	3	0	14	0	0	0	2	0	0	0	0	0	0	0	0	0	19
Northern Florida	1	7	0	43	0	0	1	9	0	0	0	0	0	0	0	0	2	59
Hawaii	2	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	90
Other State	0	45	0	2	0	0	2	418	0	0	0	0	0	0	0	0	2	465
Total	3	145	0	59	0	0	3	429	0	0	0	0	0	0	0	0	6	633

I.R.=Inflator Rupture

# Driver

## ALPHA TESTS SUMMARY

Region	PSDI		PSDI-4		PSDI-4K		PSDI-4		PSDI-4		PSDI-4		SDI		Driver Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northern Florida	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Outside Florida/ Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

I.R.=Inflator Rupture

# BETA TESTS SUMMARY

# Passenger PSPI-L

## **BETA TESTS SUMMARY**

Region	PSPI-L		PSPI-L		PSPI-L		PSPI-L		PSPI-L Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	44	295	0	0	0	110	0	16	44	421
Northern Florida	8	94	0	3	0	3	0	46	8	146
Puerto Rico	2	54	0	0	0	0	0	0	2	54
Outside Florida/ Puerto Rico	0	174	0	10	0	300	0	4	0	488
Total	54	617	0	13	0	413	0	66	54	1109

I.R.=Inflator Rupture

# Passenger PSPI

## BETA TESTS SUMMARY

Region	PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	126	3	118	0	42	0	14	0	21	0	65	0	17	0	0	3	403
Northern Florida	0	223	0	27	0	127	0	3	0	99	0	121	0	14	0	1	0	615
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other State	0	58	0	294	0	15	0	14	0	103	0	69	0	0	0	0	0	553
Total	0	407	3	439	0	184	0	31	0	223	0	255	0	31	0	1	3	1571

I.R.=Inflator Rupture

# Passenger SPI

## **BETA TESTS SUMMARY**

Region	SPI		SPI		SPI		SPI		SPI		SPI		SPI		SPI TBD		SPI Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	55	0	12	0	0	0	15	1	12	0	3	0	2	0	0	1	99
Northern Florida	5	240	0	40	0	1	0	58	0	11	0	0	0	0	0	14	5	364
Hawaii	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Other State	0	8	0	0	0	0	0	43	0	3	0	0	0	0	0	0	0	54
Total	5	305	0	52	0	1	0	116	1	26	0	3	0	2	0	14	6	519

I.R.=Inflator Rupture

# Driver

## BETA TESTS SUMMARY

Region	PSDI		PSDI-4		PSDI-4K		PSDI-4		PSDI-4		PSDI-4		SDI		Driver Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	50	0	333	1	248	0	141	0	17	0	51	0	1	1	841
Northern Florida	0	1	0	142	1	65	0	217	0	14	0	148	0	0	1	587
Outside Florida/ Puerto Rico	0	126	0	457	0	322	0	83	0	1	0	22	0	0	0	1011
Total	0	177	0	932	2	635	0	441	0	32	0	221	0	1	2	2439

I.R.=Inflator Rupture

# TOTAL TESTS SUMMARY

# Passenger PSPI-L

## **TOTAL TESTS SUMMARY**

Region	PSPI-L		PSPI-L		PSPI-L		PSPI-L		PSPI-L Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	<b>57</b>	<b>419</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>113</b>	<b>0</b>	<b>16</b>	<b>58</b>	<b>556</b>
Northern Florida	<b>8</b>	<b>157</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>46</b>	<b>8</b>	<b>225</b>
Puerto Rico	<b>8</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>100</b>
Outside Florida/ Puerto Rico	<b>0</b>	<b>176</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>323</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>562</b>
Total	<b>73</b>	<b>852</b>	<b>1</b>	<b>86</b>	<b>0</b>	<b>439</b>	<b>0</b>	<b>66</b>	<b>74</b>	<b>1443</b>

**I.R.=Inflator Rupture**

# Passenger PSPI

## TOTAL TESTS SUMMARY

Region	PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI		PSPI Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	182	7	152	0	43	0	30	0	22	0	76	0	17	0	0	7	522
Northern Florida	0	325	0	28	0	130	0	7	0	104	0	145	0	14	0	1	0	754
Hawaii	0	15	0	0	1	26	0	0	0	0	0	0	0	0	0	0	1	41
Other State	0	80	0	304	0	93	0	48	0	441	0	354	0	0	0	0	0	1320
Total	0	602	7	484	1	292	0	85	0	567	0	575	0	31	0	1	8	2637

I.R.=Inflator Rupture

# Passenger SPI

## TOTAL TESTS SUMMARY

Region	SPI		SPI		SPI		SPI		SPI		SPI		SPI		SPI TBD		SPI Total	
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	58	0	26	0	0	0	17	1	12	0	3	0	2	0	0	1	118
Northern Florida	6	247	0	83	0	1	1	67	0	11	0	0	0	0	0	14	7	423
Hawaii	2	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	92
Other State	0	53	0	2	0	0	2	461	0	3	0	0	0	0	0	0	2	519
Total	8	450	0	111	0	1	3	545	1	26	0	3	0	2	0	14	12	1152

I.R.=Inflator Rupture

# Driver

## TOTAL TESTS SUMMARY

Region	PSDI		PSDI-4		PSDI-4K		PSDI-4		PSDI-4		PSDI-4		SDI			
	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests	I.R.	Tests
Southern Florida	0	50	0	333	1	248	0	141	0	17	0	51	0	1	1	841
Northern Florida	0	1	0	142	1	65	0	217	0	14	0	148	0	0	1	587
Outside Florida/ Puerto Rico	0	126	0	457	0	322	0	83	0	1	0	22	0	0	0	1011
Total	0	177	0	932	2	635	0	441	0	32	0	221	0	1	2	2439

I.R.=Inflator Rupture